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EDITORIAL.

VACCINATION AS A PROPHYLACTIC MEASURE.

The progress reported by the veterinarians of Europe, in the prophylaxy of certain of the contagious diseases of our domestic animals, as the result of the process of inoculation, is a fact as yet comparatively ignored in the United States. At least, if not quite ignored in practice, it is resorted to rather as an uncertified experiment in the domain of curious inquiry, than with a recognition of its established value as a tested and confirmed scientific method. This, in a great measure, accounts for the numerous reports in our agricultural papers, with circumstantial detail, of frequent outbreaks, in designated localities, of one or other of the contagions in question, and the fearful havoc which marks their progress, involving not only the serious money loss which befals the individual sufferers, but affecting, in a greater or less degree, the general wealth of the nation.

This being the case, the question which presses for an answer is, Who is to blame for this? Who is responsible for the neglect of inoculation in bacteridian and bacterian authrax, in hog cholera and in chicken cholera, in this country? Why is it that prophylactic means are employed against a single disease only, pleuro-

pneumonia, when a little careful reflection must convince any intelligent person that the results obtained in connection with this one disease are scarcely worthy to be put in comparison with those which follow systematic inoculation against the others?

We are convinced that very much of the blame is due to veterinarians, who for lack of properly appreciating the value of the operation, have hesitated to put it into practice. The experiments first made against bacteridian anthrax by the method of Pasteur, with those that followed against symptomatic anthrax and hog cholera, have again and again proved their efficiency. It is true that in a few cases they were at first considered as failures, as in the early attempts made in Italy, but they soon became established in popular estimation. Recently, extensive experiments have been made in Germany with the virus of hog cholera, as prepared by the method of Pasteur, and immense success has again crowned the enterprise.

Now, why is it that this plan of vaccination has acquired such an unquestioned and established value in Europe, and why is it that it is so extensively adopted into practice? It is because veterinarians have been the first to urge its application, for in the various attempts which have been so happily successful, veterinary surgeons have been the active agents, in many cases strictly and exclusively, and in others less directly, acting in the character of representatives of the interests of the agricultural community.

For the veterinarians of the United States, though we may be somewhat culpable for want of the same initiative, a fair excuse may probably be inferred from the query: "Where can the vaccine virus be obtained?" We have on various occasions published the different processes for preparing the material, but great difficulties attend the manipulation, and but few persons are found capable of making a vaccine virus of good quality. A gentleman engaged for years in this special work informed us a short time since that methods of preparation vary very much, and that the *modus faciendi* of to-day is very different from that of a year ago.

Let us then but obtain the proper virus, and we are confident that our veterinarians will gladly put it to the trial. We take

pleasure in announcing that we have now in our possession vaccine virus, as prepared by Pasteur, by Chauveau and by Cornevin, and that we will gladly furnish our colleagues with samples of them for trial. We feel assured that, if properly employed, the same beneficial results will follow here as elsewhere, and our domestic animals enjoy a desirable immunity against those diseases to which the destruction of so many of them is every year to be attributed.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association will be held in a few days in New York, and we take occasion to remind the numerous members of the importance of the meetings, and of the necessity and duty of their attendance. The meetings have grown yearly in interest, and the attendance has steadily augmented, and many reasons might be stated why this year the result should indicate still greater interest, and larger showing of the membership. Last year the meeting of the association was held in Cincinnati, and all those who were present will remember how profitable and pleasant an event it was. The change in the plan of meeting has no doubt produced amongst veterinarians of the West a more harmonious feeling toward their brother practitioners of the East than before existed, and it is to be hoped that this fraternal sentiment will be strengthened at the coming meeting. From letters that have reached us we derive abundant evidence that the division that existed on account of the formation of a new so-called "National" body, is likely to subside, and that many Western members will be present, either as delegates of Western State societies, or with a view to unite personally with our body.

It is to be hoped that the heads of the various committees and others will be prepared with full and good reports upon the subjects placed in their charge, and that those to whom the organization of the meeting is intrusted will have perfected all the measures necessary to make it in every sense a success. In order to refresh the minds of the various officers from whom reports or papers may be expected, we publish in another place a list of those upon whom will rest the responsibility of these matters.

NATIONAL CATTLE GROWERS' ASSOCIATION.

We have been favored with an invitation to attend the third National Convention of Stockmen, appointed to take place on the 17th and 18th of November next. The programme which we have received contains evidence that no effort has been spared to make the meeting a success, and to secure a full discussion of the various questions involved in the important branch of our agricultural wealth which will be brought under review. Numerous papers are announced for presentation and discussion, one of the most important emanating from the United States Commissioner of Agriculture, Hon. N. J. Coleman. Another paper, which promises to be of unusual interest to veterinarians, is promised from Dr. E. Salmon, Chief Veterinarian to the Bureau of Animal Industry, who has his name down for a presentation of the subject of contagious diseases of cattle. Whether the Doctor will limit himself to the subject of pleuro-pneumonia, or will also include those other contagious diseases which infect our herds, is a question of no little importance. While the subject of contagious lung scourge is, of course, full of interest, it would be quite unfortunate to find that other equally interesting subjects, such as the various forms of anthrax, Texas fever, abortion in cows, etc., had been overlooked or ignored by the Doctor. In any case, however, whatever may be the inclusions of the subjects which will be treated by Dr. Salmon, there is no doubt that his paper will constitute one of the great attractions of the meeting.

STATE VETERINARIANS.

Who would have supposed, a few months ago, that such an official position as "State Veterinarian" would ever exist; and who would have imagined that the East would be behind the West in the selection and appointment of competent men to bear such a title? It is evident that appointments to such a post have been difficult by reason of the deficiency in the numbers of qualified veterinarians in the East, and, of course, the difficulty would be still greater in the West. But since the increase and improvement of our veterinary schools—and we may venture to refer

principally to those of New York—veterinarians of education have become more numerous, and now the West is glad to come and secure their services. Wyoming Territory, Kansas, Illinois, and many other States are now provided with accomplished officials, and we have just received intelligence of the appointment of Dr. G. Keefer to the position of Territorial Veterinarian of Montana Territory, and of Dr. Julius Gerth as State Veterinarian of Nebraska. The alma mater from which these gentlemen were graduated may feel proud of these successes of her sons, and the addition of their names to others who had previously achieved similar distinctions.

ORIGINAL ARTICLES.

THE VETERINARIAN AS A SANITARIAN.

By Prof. L. McLean, M.R.C.V.S.

(A Paper read before the New York State Veterinary Society.)

Mr. President and Gentlemen.—The subject I have selected to bring before you this evening is a many-sided one, and I will endeavor to present it from a practical point of view. The Veternarian as a Sanitarian.

The veterinary profession has, in my experience on this continent, made rapid progress, and has, at least in this city, been well received and patronized, and it is for us to act as a profession and individuals, that we may show that such confidence has not been misplaced, and the communities amongst which we live have a right to expect that we will act actively and intelligently as sanitarians, in protecting them against the dangers of contracting, either by inoculation or ingestion, any of the many contagious or epizootic diseases to which our patients are so liable.

Science has, within the past few years, thrown such a strong light upon their etiology that we are no longer in ignorance as to the most rational hygienic measures which should be adopted for their suppression, if you, gentlemen, accept of the germ theory

of disease, as I do; that is, that each specific disease has a specific poison germ or seed which lives, grows, and has a being specifically distinct from each and all other germs. By specific disease I mean one which has its own peculiar characteristics, and which in its special appointing symptoms of reaction distinguishes it from all others; or, in other words, that all specific and contagious diseases are produced only by a minute living organism which cannot be spontaneously generated, but capable of an enormous reproduction when artificially cultivated for scientific purposes, or by the introduction of one single germ into the system of a fertile subject, affording more than sufficient to contaminate a whole continent. They are so exceedingly small that they can be readily carried in the atmosphere and so deposited in wounds, and it is by giving credit to this fact that we who have in our practice adopted the principal of antiseptic surgery can account for its beneficial results. They may be inhaled or swallowed in the food or drink; that many of them are propagated in the soil or water, such as those of anthrax, is an admitted fact, and although we have no proof of the germs of contagious pleuro-pneumonia propagating themselves outside of the animal system, still there is ample authority that they do for a long time, in a suitable medium, resist destruction, while the life history of the germs of epizootic aptha, in or outside of the animal system, is one of very short duration.

Now it is admitted that the exhalations of an animal affected with pulmonary tuberculosis, contagious pleuro-pneumonia, etc., are largely charged with the germs of such diseases, and taking into account the exceptional affinity milk exhibits for the absorption of volatile matter, and how readily it becomes contaminated with diseased germs outside of the animal system, thereby becoming one of the most effective carriers of contagion—it absorbs them readily, is very retentive and is a wonderfully fertile soil for their development—you will at once see the imperative necessity of guarding against its contamination. This supervision should begin in the stable where the cows are milked, which should be clean, well lighted and ventilated, emanations from putrifactive or decomposing agents being strictly guarded against.

The habits of the attendant should be cleanly and himself free from any contagious disease. No animals affected with a zymotic or septic disease, such as tuberculosis, contagious pleuro-pneumonia, epizootic aptha, retention of placenta, etc., should be allowed to occupy the same stable wherein healthy cows are milked, as the milk would readily become contaminated with the emanations from such.

The system of delivering milk in private cans to families should be prohibited; these cans being frequently taken into the sick room and there opened, returned to the dairy to be cleaned, still retaining a certain portion of the contents, after being exposed to the contaminated atmosphere of the sick chamber, to be handled and cleaned by the hands of the person who takes an active part in the next milking. On the same principle I think no milk should be sold out of a store having a connection with a family dwelling place. Is it not most likely to occur that the mother proceeds to milk the cows or dispense milk in the store directly after nursing or administering to the wants of some member of the family affected with some contagious disease? Milk cows in cities are largely fed upon sloppy food, so as to increase their yield, but this system of feeding renders the fæces of a semi-liquid condition, and very largely increases the secretion of urine, complicating the sanitary arrangements necessary to keep such stables clean.

The flooring upon which cows stand should be water-tight and of such length that the fæces and urine drop into the gutter, which should be at least eight inches deep and twelve wide, and so arranged that all liquids readily run into a cesspool and the manure removed at least twelve yards from the stable into water-tight vaults. By having the gutter of this depth and so arranged, there is no danger of having the udder of the animal fouled upon its lying down, and, to absorb any liquid that may be left, the cow should be liberally bedded with straw or turners' shavings; and before milking the teats and udder should be cleaned with a cloth and water kept for that purpose. One has only to see the contents of a milk pail before the milk is strained to appreciate the necessity of this arrangement. And, as I have already said,

if strict attention in the matter of detail is necessary for success in antiseptic surgery, it is in a two-fold degree more so to prevent the contamination of milk outside of the animal system.

Now, gentlemen, what about the milk of diseased cows? I have no hesitation in saying that the milk of an animal affected with any contagious disease, whether zymotic or septic, should be condemned. One can readily reason on scientific principles that such milk cannot be healthy, and it would be folly on our part to wait for universal evidence in every instance of its pernicious effects. There is positive proof of the milk from an animal affected with tuberculosis when fed to other animals producing that disease, whether you have lesions in the mammary gland or not, and I have known of a whole litter of twelve young pigs die within twenty-four hours after partaking of the milk of a cow affected with epizootic aptha.

A few words as to the advisability of using the flesh of animals affected with a contagious disease as an article of diet: Many of our profession are in favor of rejecting all such animals as being unfit for human consumption, while others advocate the rejection of only certain portions of the carcase, although the latter always qualify their position by the proviso that the flesh be well cooked. From this point of view how futile and inoperative is the safeguard they employ, as in members of your own families how often is it found that rare meat is preferable, and how frequently do you hear it in our restaurants ordered as "rare," with a strong emphasis put on the latter condition. Is it possible that an animal affected with a zymotic disease at a certain stage of that disease can in any portion be free from contamination?

The position of those who advocate the use of certain portions of the animal amounts to, from their standpoint, the acceptation of the idea that certain parts are good and others bad. Is it not more rational and consistent that all are bad, but certain portions worse? I do not say but that an animal having lung lesions of contagious pleuro-pneumonia may, at a certain period, be made prime meat, but I hold that during the incubative stage, where you always find a high temperature, that the carcase as a whole should be condemned, under every other extenuating condition,

and this must necessarily apply to all such diseases. I consider that the inspection of our meat should be under the control of qualified veterinary surgeons with a special training in this department, and that such inspection should be only conducted at the slaughter house, as the lesions of most of our specific diseases are localized in some of the visceræ. I may say that I have within the past twelve months in this city as veterinary inspector condemned as unfit for human food 85 cattle affected with tuberculosis and 176 suffering from contagious pleuro-pneumonia, and there have also been reported and destroyed 260 horses affected with glanders or farcy.

In thus condemning the carcasses of cattle affected as above I am satisfied that many of my professional brethren will disagree with me; still I hold that if I err I err upon the safe side. By the recent report of the State Dairy Commission, we find that the cities of New York and Brooklyn consume daily the milk of 100,000 cows, and basing it upon my experience, I will venture to say that not less than three per cent. are affected with tuberculosis in one or other of its various forms.

This important source of food supply should come directly under the head of veterinary sanitary inspection. Much has been done by the use of the lactometer in preventing the adulteration of milk with water. So far good, but is this not a minor offence compared with the positive diseased germs conveyed therein from the milk producer and the contaminated surroundings, and of which the lactometer can give no indication? The practice of some Boards of Health, in employing medical men to do the work of the veterinary sanitarian, is not creditable to either profession. I have found that medical men who have nothing but their medical education as a qualification for such work are quite incompetent, and with equal propriety and success the order might be reversed, and the qualified veterinarian appointed to make medical inspections. Let our profession so advance that we will be considered an indispensable part of every well organized department of health, for not alone local but also national interests depend upon the vigilance and painstaking of the qualified veterinary sanitarian.

OSTEO POROSIS—"BIG-HEAD."

Paper read before the Ohio State Veterinary Medical Association.

By Dr. J. C. Meyer, Jr., D.V.S.

In view of the unusual prevalence of this disease during the past nine months, I am induced to submit a paper setting forth the most prominent features of this creeping malady in order to institute a discussion of matter appertaining to it, thereby enabling us, if possible, to arrive at a definite conclusion as to the ætiology, pathology, prophylaxis and treatment of this disorder.

The term "Osteo Porosis" is described by Dunglison as follows: "Induration of a bone from the deposition of too much bony matter called osteo sclerosis. Also a bony degeneration, which consists in too great porosity with hardening."

"RARIFACTION OF BONE."

This definition does not fully describe the conditions of bone in our patients affected with the disease we designate "Osteo Porosis." The porosity of the bone is manifested, but the induration does not exist; on the contrary, there is a lack of density of bone, an insufficient quantity of earthy material, consequently the bony structure becomes spongy. There is a distension of bony cells, a condition of hypertrophy, accompanied by serous infiltration. This abnormal state of bones predisposes them to fractures. The superior and inferior maxillary are generally the first to undergo this change, hence the name "Big-head." In the outset it is detected in the inferior maxillary bone; next the superior maxillary bone becomes involved, although other bones not so visible also become degenerated, as is often exemplified by the occasional fractures of bones of the extremities. It seldom occurs that a bone fractures completely, fragments of bone being broken off at the insertion of ligaments, tendons and muscles.

The malady is unquestionably due to a blood poisoning and is in most cases attended by rheumatic lameness, located most frequently about the phalangeal region of one or more extremities, the shoulder, hip and hock joints, and even the lumbar vertebræ, are also the seat of rheumatic pains and lameness.

ÆTIOLOGY.

The larger breed of our work horses, such as Normans and Clydesdales, are most susceptible to this disease, but still more in proportion the Shetland pony becomes its victim; of course others are also affected. These classes of horses having a predisposition for this disease, we will give the exciting causes a consideration.

I have given this matter a great deal of thought, and after studying all the hygienic influences, have not been able to discover the true origin of the disease. Atmospheric influences undoubtedly play the most important role in developing this disease, but what it is that contaminates the atmosphere of the infected stables I have not been able to determine. Stables having the best of ventilation and drainage, complete in all their details for the preservation of health and for the comfort of horses, are, nevertheless, visited by this disease. It is found among horses in brick, wooden or stone stables, built either on high or low ground. I have observed that it occurs most frequently in stables whose floors rest on joists or stilts, forming a vacant space between the ground and stable floor. Horses that are kept on dirt floors, or even in underground stables, strange to say, are less liable to become affected with osteo porosis or rheumatism than those quartered in stables on the first, second or third floor. To meet with a case in an underground stable is an exceedingly rare occurrence. This convinces me that moisture does not contribute to its development. Cases of osteo porosis and rheumatism are occasionally found in suburban stables. Country farms seldom if ever favor the production of this malady.

Considering the prevalence of the disease in certain localities, we might suspect contagion, but when we consider the fact that horses thus affected can be transferred to non-infected quarters without communicating the disease to the others, is sufficient reason to ignore contagion.

The different kinds of food do not have any influence upon the production of this disorder; the water which the horses in this locality drink is river water, containing a considerable quantity of earthy salts, but I cannot ascribe the cause to this water,

for the fact that non-infected stables use the same water. The disease originating from common colds is out of the question. It makes its appearance during the months from October to May. Its acute inflammatory rheumatic form is most striking from January to April.

SYMPTOMS.

A gradual failing of the appetite is first observed. Some horses quid their food, owing to the soreness of the maxillary bones. Pressure on the inferior maxillary bone gives rise to pain, indicated by the horse throwing his head to one side, partly opening the mouth and drawing away. The flanks become drawn upwards, the coat is staring. Lameness of one or more limbs is present. There may be a general stiffness, characterized by short steps due to a diseased state of the vertebral column. When driven the horse will sweat and tire easily, while in the stables he lies down a greater part of the time to rest. The seat of lameness is for the most part in the lower portions of the extremities. Lameness occurs in some cases by degrees, in others instantaneously and violently—as though they had stepped on a nail. In the former the symptoms are not very strong, while in the latter a febrile condition is quite apparent, characterized by swelling, tenderness and heat of the ankle down to the hoof. Twisting or extending the foot is very painful. By sounding the foot pain is experienced at the point of the frog, a peculiar symptom, which causes us to infer that it is a bruise or that a foreign substance is in that vicinity, but which is nothing more than pain produced by a concussion conveyed to the tendonous insertion of the flexor pedis perforans.

If lameness be present in one or more limbs the pain is excruciating; the patient lies down almost continually, and when urged to rise he will get up with difficulty—he trembles, arches his back and breathes rapidly with nostrils distended, and acts like a case of severe laminitis. When in this condition it often happens that he partially or completely breaks down in one or more of his limbs. This complication calls forth additional symptoms. The ankles of the broken down limb drop, in some cases touching the ground.

The anterior surface of the phalanges are concave; the pyramidal process of the os pedis is prominent. If the limb be used the weight falls chiefly on the heel. The toe has a tendency to turn upward. In this state the animal cannot stand long; however, the diagnosis can be made by manipulating the foot while he is lying down. Inflammation around the seat of rupture becomes very severe. Suppuration is established and the breaking through of the skin takes place at the fetlock. A finger can be introduced into the orifice which will come in contact with the coffin bone, that is if the separation be of the flexor pedis perforans tendon. I will here state that the tendon itself never ruptures but separates at the insertion, often tearing a piece of bone with it to which it is attached.

Next in importance is the separation of the flexor pedis perforantus. This is not as frequent as the former; when it does tear, it tears at its insertion, taking with it the upper postero lateral margin of os cornea. This naturally does not allow the phalanges to drop entirely, although the displacement is easily perceptible. In such instances suppuration does not follow, but lameness and inflammation is intense.

Fracture of the os calsis is an occasional accident, that is complicated with osteo porosis, caused by over-exertion, in falling, or whilst struggling to rise. The symptoms are quite obvious. The point of the hock joint appears flattened, enlarged and painful upon pressure. Upon careful examination mobility is felt. The limb from the hock drops downward and forward, the hoof resting in close proximity with the forefoot of the same side, forming an angle of 45°.

Fractures of the sessamoid bones is not an uncommon occurrence in this disease. If it occur, it usually takes place at the inferior third of the bones, causing the ankle to drop partially and the inferior sesamoidean ligament loses its hold.

It sometimes happens that horses afflicted with this disease, while walking on a level street, by simple slip or misstep, can fracture the external angle of the illium.

One case of fractured metatarsus of a Shetland pony came under my observation, caused by a horseshoer, while attempting

to wrench off the shoe. The pony had suffered with osteo porosis for six months.

Patients suffering with dorsal and lumbar stiffness display a groggy gait, and when down it is difficult for them to get up. Some can be raised with a little assistance by the tail, while others require the use of the slings. They, however, can stand without any support when up.

Prognosis is very unsatisfactory. An entire recovery cannot be relied upon. They may make an apparent recovery, a partial recovery, they may die or it may become necessary to destroy them. The enlargement of the maxillary bones never disappears entirely, though the lameness and general indisposition may subside, but under exciting causes are apt to return. During the warmer months these patients can perform their work with comparative ease; even through some winter seasons they may escape a relapse. Especially is this true if the air be contaminated with other noxious ingredients, as those producing the various forms of influenza that we are visited by occasionally.

Treatment principally palliative, change of locality is the chief remedy. Send them to the country winter or summer; if they cannot travel send them by rail, boat or ambulance.

For acute inflammatory rheumatism application of warm water to the suffering extremities is beneficial. Blisters are often called into requisition, in obstinate cases with good result, but unfortunately only to follow with the treatment to some other limb where the lameness migrated to. Setons are of good service in rheumatic lameness of the hip and shoulder joints. Applications to the enlargements about the head are absolutely futile. Equally worthless is the use of actual cautery to these enlarged bones. Trephining them is absurd in the highest degree. Nor is the most skilful veterinary dentistry of any avail to restore their mastication and appetite.

Internal medication has not proven very satisfactory, though the administration of certain medicines is commendable. Salicylic acid, iodide potash, nitrate potash, powdered colchicum seed, cod liver oil with turpentine have acted favorably in many instances. The transfusion of lamb or calf blood has been tried with only

fair success. Grass, warm weather and long time are the best remedies that can be resorted to.

Aggravated cases lie down the greater part of the time and consequently get bedsore. This complication must be obviated as much as possible by plenty of clean litter. If bedsores do supervene, attention must be given to them.

Those cases that are unable to rise but can stand when up, had better be kept in slings at night to guard against injuries.

As to the prophylaxis, which is the most valuable information pertaining to osteo porosis, I cannot explain with any marked degree of certainty, owing to the vague knowledge concerning its origin. There is one thing, however, that I would advocate, and that is, the disposal of wooden floors and have the stall filled with clay, liberally supplied with pine or poplar sawdust.

RAILROAD HORSES,

THEIR SELECTION, MANAGEMENT, SOME OF THEIR DISEASES AND TREATMENT.

A paper presented to the New York State Veterinary Society by R. KAY, D.V.S.

Mr. President and Gentlemen:

The subject I bring before you this evening comprises railroad horses, their selection, management, some of their diseases and treatment.

Since we have about fifteen thousand head of horses working on the surface railroads of this city, it becomes the duty of us as veterinarians to give encouragement to each company to employ the best talent they can procure. It should be the work of the veterinarian to make the proper selection of such stock; secondly, he should overlook the handling of green horses during the period of acclimatization, or the change from country to city life and work; thirdly, he should note carefully their special ailments, that are brought about by this kind of work; and lastly, to see they are relieved or treated by the most scientific methods, and such as will result in the quickest recovery, using mild in prefer-

ence to severe means to accomplish this purpose, and keep the animal at work rather than laid up in the hospital undergoing some exhaustive experiment under the hands of the non-experienced person who happens to have charge of such stock.

Selection. For this work the veterinarian should be quite familiar with the external form of the horse, as well as anatomical parts, and normal from abnormal, as well as pathological conditions that may exist. He will select an animal past six years old, that stands about fifteen and a half to sixteen hands high, and weighing about ten hundred and fifty pounds when in good working condition, color not so much of an object, though roan probably the most hardy. The anatomical features to be noticed are first, the face wide, the jaws well set apart and deep, tapering towards the nose, but terminating with well dilated nostrils; the ears open, well forward and not too long; the throat clean cut and light at the junction with the head; the neck deeply set from the shoulders and arching from the withers; the back not too long; the hips wide; the ribs set well out and rounded; the fore legs set well apart, with long bones well developed at each extremity; good sized carpus and fetlock joint; the metacarpus flat and little connective tissue; the phalanges obliquely set and springy, to lessen the jar while traveling over the stone-paved streets; the foot with deep wall and almost circular toe, and wide set heel, sole evenly concave; the hind legs with long thigh and muscles well developed; the back not too crooked, well developed, but flat; the metatarsal bone flat and clean. In the common class of horses that are sent to this city for railroad work, we find many of them with coarse hocks, due to excess of development of the cuneiform bone. These we should not call spavin, nor reject them, as they will stand rough work better than others more finely developed. I know it would be impossible to select the number of animals to fill the vacancies caused by deaths on the several roads of this city, following the standard I have given, but I think we should act as teachers, through our Government, and show the people who raise this poor stock that well formed animals can be raised at the same cost price. This could only be accomplished by our Government selecting a well fitted man to visit these

breeding districts and watch their work, setting a good model in their way.

MANAGEMENT.—This would include the cleanliness of the animal, the stable and surroundings, and general hygiene, feeding, breaking to work, and amount of labor daily. Cleanliness of the animal would be accomplished by good grooming: and of the stable by water-tight floors, slats on the back half of the stall, with enough incline to drain off well; moisture taken up by the use of lime sprinkled on the floor daily; the walls, stalls and ceiling whitewashed often. A weak solution of sulphate of iron run down the gutter once a week will act as a good disinfectant and keep away rats. We have many deodorizers and disinfectants; the above is to be preferred, using one pound to eight gallons of water. It undergoes oxidation or decomposition, and converted into sulphurous acid solution, it is the cheapest, is odorless, and easiest managed of our disinfectants. Lime is also valuable. It is a caustic alkali and destroys the acid odors that arise from fermentation of such prepared food as the animals has left in the feed box or scattered in the stall. Its action as a disinfectant is by hydration, being capable of taking up sixteen hundred times its own volume of watery vapor. By this combination it gives off heat, causes currents of dry air, and thus destroys any fungi that may be floating in the atmosphere, as well as rendering better ventilation by their currents. Overcrowding should be guarded against, not more than fifty head in one apartment. Will be good to build the stables on each side of a square, leaving a court-yard in the centre for exercising animals that are convalescing from sickness or not able to work. If the extent of ground surface is small, it is better to have two stories than crowd so many on one floor. A double row, with walk down the centre and windows in front of the animal, will give good ventilation; sun blinds outside will add to their comfort in summer.

The stock should be divided into four sections: 1st—Those fitted for work; 2d—Those laid up by lameness or internal diseases, accidents, etc.; 3d—A reception stable for green horses to remain till broken in, and then transferred to the working stock; 4th—A stable for quarantine of animals with suspected

contagious diseases; this last to be entirely separate and nowhere connected with the other buildings.

Feeding.—It would be impossible, if not impracticable, to feed fifteen hundred head of horses at one stable on hay and oats without preparing; therefore a system has been devised to chop the hay and grind the grain, generally using a mixture of corn and oats. It is prepared by wetting enough for the hay to take up the meal; some companies add salt daily, while others only once a week; each animal is allowed about twenty pounds of meal with ten pounds of chopped hay daily; in addition a little hay uncut is given in the evening. From my observations, I have noticed where salt was least used the animals were more subject to colic. I would not, however, say that colic arises from the lack of salt, though we know salt has an important office to fulfil in the stomach, that of going to form the hydrochloric acid of the gastric juice. We also know when a deficiency of gastric juice exists, the stomach digestion, or digestion of the albuminoids of the food taken in will be diminished, and thus a portion of such food is passed off undigested, setting up more or less irritation as it passes through the digestive tract; Secondly, we know the gastric juice acts as an antiseptic, and when deficient in quantity allows the food undigested to run on to fermentation, thus adding another factor for the production of colic. Thirdly, we know that nature has given that animal a most perfect set of grinders or molar teeth, to triturate the food perfectly before swallowing it. We have also noticed when that animal draws his feed, as hay, from the rack at his leisure, he keeps in better health. This is brought about by all the organs and apparatus acting in unison; the food well triturated passes slowly through the stomach, and the vaso motor nerves of the sympathetic system are not overpowered, but allow enough blood to come to the peptic glands and manufacture enough gastric juice to fully digest the food as well as act the part of an antiseptic. We therefore conclude that the artificial or prepared food used is one if not the principal cause of so much dyspepsia and colic that is so common to our railroad horses.

Diseases.—The railroad horse is subject to all the known dis-

eases, but I will only speak of those most common in that class of horses.

1st, *Influenza.* Most green horses that enter the railroad stable have to pass through this disease, before they become acclimatized or accustomed to city life. They have it in the graded forms, as for example, one may only have a catarrh of the throat and nasal passages, while the second has it passing down the trachea, that as well as the lungs being affected; a third where it passes down the æsophagus, and has a general catarrh throughout the intestinal tract, while a fourth will have rheumatoid complications.

The treatment of the first form will be as follows: Put the animal in a good sized loose box, with good ventilation and thorough hygiene; preserve the external heat of the body by the use of blankets, a stimulating liniment, as capsicum, sulphuric ether and oil, with friction, and woolen bandages on the legs; renew the application daily and see these bandages are not too tight or interfere with the circulation. When the breathing is labored, use inhalations of steam; this will allay the irritation of the mucus membrane as well as promote the discharge. May give chlorate and nitrate of potash in the drinking water; can use glauber salts if constipated; good nursing; tempt the appetite with a variety of food; have patience, and this will be all that is needed.

The second form, when the lungs are involved, will require more active treatment. You must observe by physical signs the changes that take place daily in the lungs. If the pleura is affected and an exudation pouring out, apply the oil of cantharidis blister to the sides of the thorax. If the temperature is high give quinine, alternated with the amm. carb. pill, three or four times a day. If the throat is the seat of great pain, apply locally the above blister and give electuary in place of the pill. When the pleura is not involved, the oil silk jacket and flannel roller will take the place of a blister with a good soothing effect. Steam inhalations can be kept up.

In the abdominal form, if in much pain, the animal will be relieved by subcutaneous injection of morphia solution; add nux

vomica to the amm. carb. pill, and after the inflammation has passed support the strength with gruel, to which alcohol must be added, but never give alcohol while inflammation of a mucus membrane exists, or the disease will be aggravated. In the rheumatoid form, use hot packs to which tr. opii has been added, and cover with oiled silk, if possible; internally give carbonate of potash or soda, using hypodermic injections of morphia solution till the acute symptoms are passed. The same instructions and treatment given in the first form, will be carried out in connection with the treatment of the other forms of this disease.

The next disease most common to the railroad horse is colic, either spasmodic or flatulent; the former most prevalent.

The treatment I found most applicable and with best results, is hydrate of chloral in pill form, adding pulv. zingiberis ʒ i, to chloral ʒ i, and a few drops of water to triturate into proper consistence, using oiled paper for a cover; one dose being generally sufficient in spasmodic colic, but if not relieved in one hour, I prefer to give morphia solution by hypodermic injection, though a second dose of chloral can be given at that time with safety. The dose of physic that is so often resorted to for such cases in private practice is seldom, if ever needed for these horses. In the flatulent colic, the chloral does little or no good, but rely on puncturing with the trocar; first cutting the hair off a circumscribed portion and covering with a plaster of belladonna after the operation. I never had any complications arise or bad results follow it. Internally I give terebinthinæ, ʒ ii in an egg emulsion, preferring it to oil, which is so nauseous to the horse; besides, it serves every purpose of protecting the mucus membrane from the irritant action of that drug. I also see the rectum is emptied, and give the above with glycerine as an enema. In addition to the above, the hypodermic injection of morphia solution will allay the pain and stimulate the heart.

The next most common disease of the railroad horse is laminitis, and its pathology as well as its etiology is very imperfectly understood. Suffice it to say, the coronary band, the lamina, its corium or basement membrane and the velvety tissue, as well as the bone, (or pedis) may all be involved. These soft tissues con-

tain a dense network of capillaries and nerves. The causes of the above disease are various, but most frequently at the railroad stables, from hard driving over the stone pavement and in warm, muggy weather, where the animal is allowed to stand under the shed to dry off before putting in the stable. The animal thus exposed to drafts of cooler air becomes chilled on the surface of the body; a condition of hyperæmia of the vessels existed when the animal was brought in off the road, and this chill interferes with the return of circulation from this part; congestion and stasis follows, then an exudation of leucocytes takes place. If this is not excessive, resolution may follow, by the absorbent vessels taking up this exudate; while on the other hand, if this exudation be sufficient to block the absorbents, undue pressure will follow and structural changes take place, with suppuration and separation of the wall from the podophyllous tissue.

The treatment I have found most efficient for these cases is to remove the shoes and put the affected feet in as hot water as they can bear; keep in for three or four hours. When removed put on hot flaxseed meal poultice; give internally tr. aconiti gtts. x, every two hours for first day; alternate with nit. potassa, ʒ ii, four times a day; keep up the bath, poultice and potash till the stiffness is gone, which generally is accomplished in four to five days. Slings are of little benefit, but care must be taken to give the animal a large loose box and plenty of bedding, and preventing bed sores.

DISEASES OF THE HEART IN DOMESTIC ANIMALS, ESPECIALLY THE HORSE.

By Fr. Blazekovic.

(*Translated by J. C. Meyer, Sr., V.S.*)

Continued from page 162.

The consideration of the thoracic aspirations is of particular importance for the essential enlargement of the cavities of the heart. This aspiration of the thorax, which is conditioned by the negatively exercised pressure of the lungs, would necessarily

counteract the diminution of the cavities of the heart, if it were not overcome by the contraction of the muscles of the heart. The thoracic aspiration influences therefore only the expansion and more strongly during inspiration than during expiration—during diastole—and results in filling the whole heart with blood during the short pause of relaxation. By the negative pressure, which the elasticity of the lungs exercises over the relaxed auricle, the lungs are filled during diastole more strongly with blood. The reflux of the blood is prevented by the closing of the valve of the auriculo-ventricular opening. Toward the end of the diastole of the auricule the chambers relax, the valves open, and in the moment of pause in which the four cavities of the heart are relaxed, the blood flows out of the auricle into the ventricle. By this means the auricle, notwithstanding the small space during the following diastole, can wholly fill the ventricle with blood. The lumen of the auricle becomes smaller during systole. Under the pressure of the contracted walls of the auricle the blood obtains its impulse to flow off into the existing opening; the ventricle being at the same time in diastole the blood can flow out of the auricle without restraint until a stronger filling of the auricle obstructs a further influx of the blood. The replenishing of the ventricle is assisted by the thoracic aspiration. The auriculo-ventricular valves cannot hinder the progress of blood into the ventricle, because during the diastole of the ventricle they form a funnel open above and below. The tubercle of Lower, which contracts simultaneously, acts at the same time as a dam and prevents stagnation of blood which might take place, in the vena cava, discharging nearly in the opposite direction. The flow of blood toward the auriculo-ventricular opening is predominant, because the contraction begins at the mouth of the veins and spreads over the whole lumen of the auricle. Still stagnation of the blood may happen during systole of the ventricle for, with the exception of the thebesii, other valve contrivances are lacking. They are, however, limited to a certain degree, for the strong muscular fibres, which, girdle like, encircle the end pieces of the vena cava, contract at the beginning of the systole of the auricle, lessen the opening of the vein and thereby render a stagnation more difficult. The

resistance against stagnation is also aided by the valves lying in the veinous system. If circumstances occur in which stagnation of the blood in the right auricle ensues during the systole of the verticle, for instance by an insufficency of the tricuspid valves, the stagnation of the blood in the veins may become so significant that the rythmical expansion and contraction of the jugular veins is perceptible, a phenomenon which has been designated venous blood. The auricle being never entirely without blood during systole is noteworthy. Furthermore, the filling of the ventricle with blood is wholly independent of the varying pressure of blood in the veins. By means of the systole of the ventricle the blood contained therein receives an impetus to escape through both existing openings in each ventricle, but the moment after the systole of the ventricle, the auriculo-ventricular opening closes by means of the valves, the blood can flow into the pulmonary artery only, thus emptying the ventricle. The ventricle, however, does not remain entirely empty during the most violent systole.

The auriculo-ventricular valves, the tricuspid of the right and the mitral valves of the ventricle are of particular importance. Their peculiar position at the opening of the ventricle, so that the blood flows between these and the walls of the ventricle, influences greatly the circulation and action of the heart upon the least deviation.

As soon, however, as the pressure in the ventricle caused by the violent filling of blood, and through the influence of systole the walls of the ventricle contract, the auriculo-ventricular valves also begin to close completely. The completion of the heart's action and the normal condition of the circulation depend particularly upon the precision with which the valves close. As is known, the valves act as a damper and must produce such a complete closure, so that not a drop of blood can flow from the ventricle into the auricle.

At the commencement of the aorta and the pulmonary artery the semi-lunar valves prevent the return of blood through the arteries into the ventricle. These valves are applied against the walls by the penetration of the blood. However, in the beginning of the diastole of the ventricle the pressure of blood in the

origin of the arteries has become greater in the ventricle; the valves become depressed and form a pouch, which makes the reflux of blood from the arteries into the ventricle entirely impossible.

The mixing of the blood, which flows into the heart from the different parts of the body, is caused partly by the current and partly by the ruggedness of the inner surface of the heart, especially the fleshy parietes. It is generally admitted that the right ventricle receives and discharges a greater quantity ol blood during inspiration than during expiration, which circumstance must be considered in diagnosing.

Of special value for diagnosis are the sounds and impulses of the heart, which arise by change of position and form of the heart, whilst the systole of the ventricle exercises a pressure upon the parts of the lungs situated between the heart and thoracic walls, causing a concussion of the thoracic walls, and results in the appearance of the heart beats and sounds of the heart. Accordingly the heart beat, which coincides with the systole of the ventricle, is confirmed, for the heart is soft and supple during diastole of the ventricle and during the systole of the ventricle becomes hard and elastic, and in consequence of the resistance which it encounters by the expelling of blood, the heart must change its position during systole of the ventricle.

I shall discuss the number, frequence, and regularity in timbre and the result of the hearts sounds in another part of this lecture.

It is necessary to take a minute consideration of the influence of the nervous system upon the normal state of the heart. Above all, it is noteworthy that the will can in no way exercise any influence upon the rythmical action of the heart. The construction of the heart is therefore very peculiar in that it lacks every trace of motors for voluntary action. However, the heart, as every other muscle, possesses the property of irritability, which can be aroused by every possible impulse. The inner surface, however, seems to be more susceptible to mechanical and chemical stimulants than the outer; the sensibility, on the contrary, appears less important, for the animals exhibit no particular pain when the muscle of the heart is injured.

The action of the heart is no doubt dependent upon the central part of the nervous system. However, other nerve motors exist for it also for, after total destruction of the spinal cord and the brain the action continues for some time if the respiration be artificially maintained. Furthermore, it is remarkable that the destruction of the superior ganglion, the sympathetics and the thoracic walls do not cause the heart to stop immediately.

It is generally admitted that the precise rhythm in the movements of the seperate apartments of the heart is dependent upon the intra-carotid ganglion in the small nervous parts, which are contained in the muscles of the heart. The latter in particular are to be found in the partition wall of the auricle and on the attached parts of the auriculo-ventricular valves.

The regulation of the rhythm seems to be arranged in such a manner by checking and accelerating mechanism, that it attains its activity periodically in definite rhythms. The regulated influence upon the rhythm and the force of the heart's action is attained by means of the plexus of the heart over the branches of the nerves of the lungs and the sympathetics. The outpouring and inpouring of the blood in the vessels in the human being gives positive proof of the correctness of my assertion. Division of the pneumo-gastric nerve causes acceleration of the heart's action, an irritation of the same nerve causes a retardation of it at its peripheric end. A violent excitement of the peripheric end of the pneumo-gastric nerve after its division causes the heart during diastole to come to a complete standstill (conf. Müller l. c.). The pneumo-gastric nerves are therefore in reference to the heart's action, inhibitory nerves, have a retarding and regulating effect upon the heart, inasmuch as they to some extent regulate and keep in motion the action which was released from the intra-carotid ganglion. Excitement of the sympathetic nerve results in the quickening the action of the heart and can be brought to action again even where it is already extinct.

(*To be continued.*)

CONTAGIOUS PLEURO-PNEUMONIA.

Thesis presented by W. ZUILL, D.V.S., before the University of Pennsylvania, Medical Department.

INQUIRY INTO THE MORPHOLOGY AND CHARACTER OF THE MICROBE INFESTING THE LYMPH SPACES IN PLEURO-PNEUMONIA.

(*Continued from page* 165.)

I have already referred to the microbe which I detected in the lesions of pleuro-pneumonia, and in the following pages I shall give some culture experiments which I made with this microbe. In reference to this part of my investigations, the following notes were taken:

Saturday, October 6, 1883.—To-day a piece of lung and some serum were taken to the University of Pennsylvania for microscopical examination, and to make culture experiments, with the view of determining whether or not any organisms were present, and if so, to study the nature and character of the microbe. The microscopical examinations of the serum showed numerous lymph corpuscles, a great deal of fibrine, and admixture of red blood corpuscles; there were also present large clouds of spherical bacteria *microbes*. The absence of bacteria thermo indicated that no putrifactive changes had taken place. A piece of the lung was also examined in glycerine, and it showed the same microbes as were found in the serum, besides the elements of the lung tissue. In preparing for the culture experiments carefully sterilized tubes were taken, which were partly filled with pure sterilized gelatine. All instruments used in connection with the operation were also subjected to high degrees of heat, for the purpose of destroying all germs. After all these necessary precautions had been taken, a very small piece of lung tissue, cut from the centre of the piece of fresh lung which was at hand, and with carefully steralized instruments, was placed in a number of the tubes. Great care had been taken to preserve the lung tissue, from which the experiments were made, from infection from air. Immediately on the removal of the section from the lung, it was placed on a fold of cotton cloth, soaked with a solution of the bi-chloride of mercury, 1¼ grains to the ounce; this was folded around the piece of lung five or six times, and then carefully wrapped in

waxed paper, and again wrapped in cotton cloth treated as before, followed by waxed paper folded four or five times, and in this way taken to the laboratory. Contamination from air was absolutely impossible. Other tubes were inoculated with the pure serum from the lung, which was collected into vacuum tubes, by first inserting the point of the tube beneath the pleura of the organ, deep into the distended lymph spaces, and there breaking off the point, when the tube will immediately fill with serum, thus avoiding the slightest possibility of the entrance of air. As soon as it was full it was immediately sealed by the blow-pipe and alcohol flame, and in this way the serum was obtained absolutely pure. This serum was also used for culture purposes. Monday, October 8, 1883—It was seen that germs had begun to develop in the culture. October 9.—Germs continue to grow; development to a much greater extent than yesterday. October 10.—Culture continues to develop; liquefection is taking place. October 11.—The culture medium is nearly full of new growth, liquefaction has gone on, and a peculiar greenish-blue color invades the upper part of the culture medium. October 12.—The cultures were found to be very impure, as far as external appearances were concerned; that is to say, to contain more than one form of fungi, except two of the cultures in salt dishes, which showed development of the microbes only as a precipitate. This precipitate was marked in all the cultures. With the exception of the two salt dishes, all contained a micoderma, that is, a development of fungi at the periphery. The development of the precipitate fungi had a marked effect in liquifying the jelly. This was the more apparent, as two of the cultures, which showed little or no liquifaction, showed also less development of the microbes. There was no distinct difference in the cultures made from the serum and from the lung tissue, except that those from the serum appeared to give a purer culture than those from the lung tissue. October 13.—Microscopic examination of the culture showed that oideum existed in spores, and also in mycelium; large quantities of bacterium thermo could be seen. It was now found that our jelly was impure, which will make it necessary to go over the same ground again.

January 5, 1884.—After a number of attempts to obtain pure chicken soup for a culture medium, I at last succeeded. Having obtained a chicken of medium size, removed the flesh free from fat, bones and skin, it is then placed in a vessel of suitable size with sufficient water to make about sixteen ounces of soup, which is to be strained and filtered through a wet filter, which removes all the fat. This makes a beautiful, clear, amber-colored liquid, which must be placed into a Florence flask, and sterilized over a water bath at the boiling point. It is necessary to repeat this four or five times, in order to be sure of its purity. Having satisfied myself that the soup was pure, I proceeded to fill the glass bulbs which had been previously made. The serum used in this experiment was drawn into a vacuum tube, from beneath the pleura of the diseased lung, immediately on its removal from the body of the animal. This serum was mixed with a few drachms of the soup. The bulbs previously filled and sealed, were now opened, slightly warmed and a few drops of the contents forced out. The open end being now placed in the inoculating fluid, it replaces that which was forced out, and in this way as many bulbs as are desired can be inoculated. Here again great care was taken to prevent contamination from the air. The bulbs are now placed to one side or in the incubator, that the germs may grow. January 9.—Inspected cultures. They did not look very encouraging and were left for future examinations. Not having the success with these cultures that I expected, I find that I can go no further with my research at present, and I am very sorry that my time does not permit me to go into the investigation more exhaustively. I am not satisfied with my cultures, as I could not carry them on for a sufficient length of time, or a sufficient number of generations. My original intention was to inoculate animals with the isolated microbes; I have, however, given this up for the present, although this would have been a very important matter, to test the pathogenetic properties of the cultivated microbe. I therefore do not pretend more than to have demonstrated the constant presence of a microbe in the lesions, the blood, and serum, and which can be isolated and cultivated. The cultures of pleuro-pneumonia I still continue and I hope to be able to make some inoculation experiments on calves during the coming spring.

COLICS IN HORSES.

By Mr. Laquerriere.*

(*Continued from page* 115.)

GENERAL ETIOLOGY OF COLICS.

The causes of the affections we are discussing are as numerous and various as the forms they assume, and these are as diverse as their modes of manifestation and the lesions they exhibit. At times the pathogeny is very simple; while at others only hypothetical presumptions can be ventured, and again, and commonly, the most minute and critical investigations will fail to reveal any intelligible facts connected with the case in hand.

In order to simplify the question of the etiology of these affections, we shall, like Reynal, divide them into the two general titles of first, the predisposing, and second, occasional causes.

At the head of the list of predisposing causes, we may, as others have done before us, refer to the anatomical disposition of the gastro-intestinal canal. The stomach is very small relatively to the intestines, and is, besides, unable to relieve itself by the act of vomiting, which would produce immediate, and very often, permanent relief. The small intestines, by their excessive mobility, are exposed to changes of form and situation; the mucous membrane being very vascular and very sensitive, is on that account very readily impressed by external causes, which may give rise to pain or to congestion, and often to both. The large intestines, not as mobile as the small, may still be easily displaced. The cœcum displaces itself backwards; the small colon becomes strangulated; the large colon itself is liable to become bent backwards at its diaphragmatic curvature. Again, by the special functions of the large intestine it is predisposed to agglomerations and to impaction of its contents; and at last, its enormous size, together with the thinness of its walls, expose it to corresponding danger of laceration of the organ under the influence of alimentary distentions. The walls of the stomach, also so thin, are in the same manner liable to laceration from the accumulation of bulky aliments, whether solid or liquid, in its cavity. The

* Translated from *La Presse Veterinaire.*

considerations thus summarized may partially explain the appearance of nervous colics and intestinal congestions, while the occurrence of indigestions, either simple or compound in character, may account for the displacements of the intestines, the production of invaginations, stercoral masses, volvulus, or lacerations and rupture of the bowels or the stomach.

The predisposing influence of "breeds" or "strains" is without importance, and will not repay discussion; colics belong to all breeds. There are individual cases, however, of well marked and undeniable predispositions; these may be found in aged or worn-out and overworked animals, in those whose digestive apparatus is in bad condition, and especially in cribbing horses.

Climates seem to have no sensible effects upon the development of colics. They seem to appear as often in warm as in cold or temperate climates.

Notwithstanding what has been said, however, seasons have a certain predisposing effect. Cases occur oftener in summer than in winter. This is not, however, the result of a direct predisposition, the fact being mainly due to the temperature of the liquids absorbed.

Rest in the stable is always a predisposing cause.

We do not believe, so far as army horses are concerned, in the influence of new hay or oats; on account of the manner in which these varieties of feed are distributed.

As to the predisposition produced by a diseased condition of the great mesenteric artery (aneurism), upon which Zundel places so much weight, we attach but little importance to it. But, on the contrary, we recognize the predisposition accompanying advanced age. Young and lymphatic horses, as well as very nervous young animals, are quite subject to colics. Aged animals are not any the less subjected to this trouble, either from the wearing and irregularity of their teeth or the imperfect performance of the function of some part of their digestive apparatus. Horses from eight to sixteen or eighteen years, in general good health, are less subject to colic, especially in the army.

Foremost among the occasional causes must be placed cold. Cold water, drank while heated, in many instances, induces serious

colics. Snow eaten by horses, especially while warmed, has an astringent effect upon the gastro-intestinal mucous membrane, followed by congestions which often result fatally.

Exposure to cold without suitable warm covering, especially if the abdomen is unprotected, often produce similar difficulties. It gives rise to nervous colics, congestions and indigestions, each of which may be followed by the already known complication. In this case, the action of cold is explained, first, by the functional sympathy which exists between the cutaneous and the digestive apparatus; second, by a central circulation made more active by the diminution in the circulation resulting from the constriction of the cutaneous vessels; third and especially, by reflex actions upon the stomach and the intestines.

The sudden and powerful contractions produced upon the intestines by cold may give rise at once to volvulus, or invaginations, or other spasmodic intestinal displacements.

Heat, by relaxing the tissues and diminishing the tonicity of organs, may predispose to colics, and even to hernia, but cannot produce them by any direct action.

Besides cold, any other causes likely to modify or interrupt the gastric-intestinal functions, are likely to give rise to indigestion, and simultaneously, to more or less serious congestions. Change of regimen, violent exercise, a lesion already present, a certain condition of the system, too much food, liquid or solid; food of bad quality, violent physical pain, excessive work too closely following a heavy meal, or with an empty stomach—these may all become so many conditions under which colics may appear.

Chapter III.

ANATOMO-BIOLOGICAL AND PHYSIOLOGICO-PATHOLOGICAL CONSIDERATIONS UPON THE INTESTINAL TUBE OF THE HORSE.

1. *Anatomo-physiological considerations.*—The digestive apparatus is, of course, one of the most important of the economy. The normal execution of its functions insures the conservation of the individual, and preserves, in all the apparatus of the organism, the intimate solidarity which makes an organized body such a wonderful mass of various mechanisms, whose association

allows them, nevertheless, to preserve a certain independence, while at the same time they all co-operate towards a common object, the perpetual renewal of the organic life. It follows from this fact, that any disturbance of this apparatus soon extends to the entire organism; from thence to the cerebro-spinal system, and by reflex action to all parts of the body.

To repair all losses, the digestive apparatus receives the food into its cavities, where, by a series of sensitive and peculiar acts, it chooses and selects, both by its physical and chemical instinct, so to speak, and modifies that food, the assimilable portion passing into the circulatory current, while the other is rejected, as unfit for the work of repair.

Outside of its accessory organs, the liver and pancreas, the digestive apparatus is, in the abdomen, constituted by a musculo-membranous canal, twisted or reflexed upon itself several times, but whose dimensions as well as functions, vary very much. It is composed, as we are all aware, of the stomach and the intestines.

The stomach, simple in the horse, is besides, of a small size and of limited contents, compared with the enormous capacity represented by the intestines, and especially by the large colon. In consequence of this anatomical disposition the ingested masses remain but a short time in the stomach, and rapidly accumulate in the large intestinal reservoir, where the act of digestion, commenced in the stomach, is completed. Again, from the small size of the stomach, it is unable, even when distended, to interfere to any considerable extent with the circulatory function, and the displacements caused by the motions of the horse may with any ordinary gait to a certain extent always take place without detriment to the animal.

The intestines are formed of two portions very distinct, both as to their form and their functions. The small intestine constitutes a long cylindrical canal, uniform in size, and susceptible of a variety of displacements. Through this the chyme flows, more or less rapidly, after its formation in the stomach, and receives and intermingles with the biliary and pancreatic fluids, which here also meet the secretion formed abundantly by the mucous mem-

brane of the intestine itself. This first portion of the intestine possesses a vascular and nervous organization perfectly in proportion to the important functions belonging to it. This accounts for the delicate sensitiveness of this viscera, and especially of its mucous membrane, while its mobility explains the pathological modifications to which it is subject, and its abundant vascularity accounts also for the multiplicity of the congestive and inflammatory processes to which it is liable.

The large intestine has its special reservoirs in the cœcum and the large colon, in which is contained and completed the elaboration of the digestive fluids. It serves, especially the cœcum, as a second stomach, in which the remainder of the non-absorbed liquid is terminated. From this point the ingested aliments, deprived at last, more or less, of their soluble and assimilable principles, are concentrated and taken on their travels through these viscera in a more or less developed consistency. These alimentary matters, thus modified, reach the small colon and there are subdivided and pass to the rectum, to be expelled by the final aid of defecation.

Such, in a few words, is the functions of this apparatus. By its normal performance, the soluble portion, or that which has become so, of the food, has been absorbed and passed into the circulatory system, while the other and useless portion is thrown back in the external world where it comes from.

This canal, in which are thus collected and manipulated, as in an immense laboratory, the great physico-chemical materials and operations of digestion, is composed of three superposed membranes: 1. A serous envelope, dependent on the peritoneum, and possessed of all the properties of this form of membrane. 2. A muscular tissue, composed of unstriated, contractile fibres, whose excitation is under the influence of the pneumo-gastric and great sympathetic nerves. It forms what we call the *gastro-intestinal muscle.* This, by its peristaltic and anti-peristaltic contractions, forms the active agent in the ingestion of the solid, liquid and gaseous substances that travel through it. 3. A mucous membrane, constituting over almost its entire surface an extensive apparatus of secretion and absorption, whose abnormal functions

would give rise to a special sensibility and principally to an increase in the circulation of the blood, quite abundant in some parts of its extent.

Every portion of the gastro-intestinal ground is adapted and appropriated to a special system of circulation whose numerous anastamoses and capillary networks carry in each living molecule of the stomach and intestines the elements necessary to it. Veins are relatively considerable and constitute in ramifications the system of the vana porta; the lymphatics are numerous and their vessels collect to the reservoir of Pequet. Nerves rise from the solar and semi-lunar plexuses, forming themselves by a division of the great sympathetic and of the pneumo-gastric. They give to the mucous membrane a sensibility which, obscure and latent in normal condition, may be so transformed and perverted in their action as to give rise to the most excruciating pains.

Such being the organization, one may readily understand how all these organs, so beautifully arranged by nature, may undergo such pathological modifications as may at any moment disturb and prevent the perfect execution of their functions. It is these functional troubles of various orders that cause the morbid phenomena to which the familiar name of colics has been given.

(*To be continued.*)

REPORTS OF CASES.

CYSTIC CALCULI.

By Dr. F. W. Derr, Veterinary Surgeon.

On June 6th I was consulted about a grey mare of Norman breed, six years old, that had been for a year past discharging blood while at work, and for two months had a dribbling of the urine while at work; did not discover much while standing in the stable. Such is the history of the case Mr. C. M —— related to me, from which I made out a case of cystic calculi, which I told the owner, and which diagnosis proved correct after making an examination.

I had her prepared by keeping her off work for a few days, with light food and laxatives, so that when she was brought to the

infirmary, on the 13th, a week later, I removed from her a calculi that weighed four ounces. I introduced into the neck of the bladder a curling iron; with it I dilated meatus urinarus, she being a very large mare, and taking plenty of time, I dilated it large enough to remove the stone by breaking it in two with a large pair of forceps that I had made for the occasion, as I could not get a pair that were strong enough. After removing the stone I made an examination of the bladder and found its walls considerably thickened, with the mucous membrane roughened; washed out the organ with tepid water; gave anodynes, with laxatives. The case did well, the animal going to work on the sixth day after the operation.

STRICTURE OF THE RECTUM.

By the Same.

On April 27th I had a call to see a mare that the messenger said could not evacuate her fæces and was suffering considerable pain. After arriving at the place and getting a complete history of the case, I found that it had been one of inversion of the rectum. About three weeks before my being called, the mare had been treated by a veterinary surgeon who went on the principle of letting nature take its own course, which is very good in some, but will not do in all cases.

I proceeded to make an examination of the rectum, which caused her considerable pain, as she had not evacuated the gut since the day before, the owner, Mr. Samuel Caldwell, telling me he usually raked her night and morning. I found a constriction of the gut of a fibrous nature about midway of the rectum about two inches wide, closing the gut, so that I had to use some force. After having removed the fæces to get my hand through the stricture, I tried various methods to reduce the stricture, by dilation, medicine, etc., but failed in all. I then made up my mind to divide the stricture, never having seen a case before. With my left hand in the vagina and my right in the rectum I made an incision through the interior part of the stricture until I could feel the edges of the scalpel through the gut; I also made two lateral cuts. After the operation, in about three hours, the patient had a

desire to evacuate her bowels, which she did without assistance, but had considerable pain in doing so.

I gave her warm water, carbolized, three and four times daily; made an examination of her rectum every few days; kept the wounds in the stricture, etc., open. In about a week she had no trouble in expelling her fæces, and was sent home on May 27th. I made another examination and found the rectum where the stricture had been had assumed a normal condition and the animal was all right.

FATTY DEGENERATION OF DIAPHRAGM.

By E. R. Forbes, V.S., 2d Cavalry, U.S.A.

On the evening of March 1st I was hurriedly called to see a brown mare which had recently been taken from a carload of through stock. On my arrival I found her in great distress, respiration rapid and difficult, nostrils dilated, pulse feeble and oppressed, running 90; Schneiderian membrane red and injected, extremities deathly cold. Not having a clinical thermometer with me, I was unable to take the temperature.

Upon inquiry, I learned that the symptoms had been first noticed about half an hour before my arrival. Although the symptoms indicated pulmonary congestion, yet I feared other complications and reserved my diagnosis. In about half an hour she began to show great uneasiness, stamping with the hind feet, heaving from side to side; extremities deathly cold, pulse rapidly running down, and occasionally attempting to sit back upon her haunches. I now diagnosed it as a case of rupture of the diaphragm, the dyspnœa being caused by the protrusion of the intestines into the thoracic cavity. Death occurred in about two hours from the time when she was first noticed to be sick. The post mortem proved it to be a severe case of pleuro-pneumonia of long standing.

On opening the thoracic cavity on the left side about two gallons of effusion escaped; the pleura, covered with false membranes, and the parenchyma presented a dark brown appearance, closely resembling the color of the liver. The diaphragm showed complete fatty degeneration, was ruptured in two places, and about four feet of the intestines protruded into the thoracic cavity. I report this case as probably the only one on record.

MORTALITY AMONG COWS IN PASSAIC, N. J.—LEAD POISONING OR PLUMBISM.

By Wm. Herbert Lowe, D.V.S., State Veterinary Inspector, Paterson, N. J.

The people of Passaic have recently been aroused to a state of considerable anxiety owing to what was considered to be an outbreak of some dreadful malady among their cows, which were taken sick simultaneously in different parts of the city, thus causing widespread alarm. Upon inquiry I learned that they had all been pastured in one field of a few acres. Many became very sick, and generally died within a few days from the date of their illness. Dame Rumor sent flying reports in all directions, and as most of the cows were giving milk, fears were entertained lest it should be unfit for use. A physician of Passaic City, who was the owner of one of the animals in question, made an analysis of the water to which they had access, but without throwing light on the cause of the sickness. The Passaic papers published the opinions of many persons, medical practitioners and others, yet the nature of the disease still remained a mystery. The condition of things were reported to Dr. Newton, City Health Inspector of Paterson, who requested me to visit Passaic, in behalf of the State, and investigate the nature of the disease. It was quite evident that it bore little relation to any of the contagious diseases, not even to "pleuro-phenomena" which one cow doctor, with great gravity, declared it to be. But it was certainly phenomenal, and to more than the bovine scientist. The symptoms, however, indicated lead-poisoning, which I pronounced to be the cause of all the trouble. Then I went to Dundee, a place a few miles distant, to which a carcass had been removed, made a post mortem, and found pellets of white lead in the stomachs in a more or less sub-divided state. Next day another post mortem still further verified the correctness of my conclusions. A third post mortem left little if any doubt of the accuracy of the diagnosis. Dr. Farrington, Veterinary Surgeon of the U. S. Quarantine Grounds at Garfield, was present at the last mentioned autopsy. His views, in every particular, I am at liberty to say, I think coincided with mine.

The finding of the lead caused interested owners to search the pasture, where several paint cans and a paint brush were collected. It was supposed that they found their way to the field from some buildings that had recently been erected in the neighborhood.

I would like to ask the attention of professional readers to the fact that I did not find some of the symptoms, as recorded in the books, so marked in the animals which came under my observation as they would lead me to expect. How long the lead had been in the systems of the animals it is impossible to say, but the aggravated symptoms were of short duration, a few days only, and not prolonged to weeks and months as Finlay Dun states in his Materia Medica. In one of the post mortems I found on opening the cranial cavity that the brain was greatly congested. and the blood vessels engorged. The organ mostly diseased was the liver. But to attempt, on this occasion, to particularize or differentiate between pathological conditions, as revealed by the autopsies, and those recorded in the text books, would exceed the scope of this communication, which is merely intended as a brief report of lead poisoning on a large scale, and for that reason may find a place in the pages of the REVIEW.

EXTRACTS FROM FOREIGN JOURNALS.

A CASE OF EXTRA-UTERINE FŒTATION IN THE BITCH.

BY J. H. CARTER, M.R.C.V.S.

The following remarkable case came under my notice on the 26th of February last, when I was hastily summoned in the early morning to make a post mortem examination of a mastiff bitch which had died very suddenly and unexpectedly during the night, she being apparently in excellent health only a few hours previously to being found dead.

Owing to death taking place in such a sudden and mysterious manner, my first impressions were those of poisoning; but before expressing such I made inquiries as to her previous history, and was informed as follows:

The bitch was purchased on the 1st of July last, and three weeks prior to this date was delivered of three dead pups. She

was again put to the dog on the 13th of December, and was due on the 14th of February of this year. She showed no signs of pregnancy, and it was not until the 26th of February that death took place (just twelve days after she was due to pup).

Upon turning the bitch over to examine the external parts of the body, I perceived a most offensive smell, which, upon closer examination, I found emanated from a fluid of a greenish-yellow color issuing from the vagina. Upon further inquiry, I was informed she had discharged a fluid similar in character (per vagina) for six months or more.

Post mortem appearances were as follows:

The Lungs, right and left, were very pale, anæmic, and extremely emphysematous; there being dilation and rupture of the air-cells throughout their entire structure.

The Heart.—The pericardial sac contained an abnormal quantity of straw-colored fluid; the heart itself presented no abnormal feature beyond the right cardiac verticle being somewhat distended with blood of a dark, tarry consistence.

The Liver was darker and more friable than normal; whilst the gall-bladder was empty.

The Stomach was inflated with gas, and contained some foreign substances such as straw, pieces of wood, etc.; the intestinal canal presented inflammatory patches or ecchymoses throughout its whole course, the mucous membrane peeling off readily to the touch, so as in some parts to be entirely nude.

The Bladder was distended with urine, and appeared healthy. The uterus and left Fallopian tube were the seats of extensive morbid changes. The uterus was very much distended, and upon laying it open, a great quantity of purulent matter made its escape. The mucous membrane was flabby, pale and thickened, and had numerous short hairs of a fawn color firmly embedded in its substance. The Fallopian tube was very much elongated and distended in its centre, resembling somewhat in shape the horse's stomach. Upon opening this distended portion, another quantity of purulent fluid made its escape along with several bones, all completely ossified, and partially covered with hair of a fawn color. There were six bones in all, four of them being cranial, one

humerous, and one sacral. The mucous membrane lining the tube was very much thickened, corrugated and deeply grooved; these grooves running parallel to the long axis of the tube. The muscular coat of both vagina and left Fallopian tube were very much hypertrophied. This hypertrophy of muscular tissue may be accounted for in two ways, viz.: it may possibly have been produced by irritation and inflammation, set up by laceration of the soft parts during the transit of the missing bones; otherwise we may account for it as being an effort of nature to so strengthen these parts as to enable them to expel that which was foreign, and no doubt a source of irritation and trouble to the poor brute.

The missing portions of the fœtus must have either become absorbed, or otherwise passed away during the period of the discharges per vagina before mentioned. I think the latter hypothesis the most probable. From the condition of the bones found, the fœtus must have reached a high state of development. In my opinion the fœtus must have been imprisoned on the tube where its few remains were found for a period of over nine months; in fact, ever since she was delivered of the three dead pups in June of last year, otherwise how are we to account for the constant purulent discharge per vagina which had been noticed for over six months previous to her death. And then again this fluid per vagina corresponded in character with that found in both the uterus and left Fallopian tube. I think there can be no doubt as to this being a true case of tubal fœtation, and that fœcundation took place in that part of the tube where the bones were found. The question now arises which of all these morbid phenomena was the direct cause of death. I shall be pleased to hear the opinions of some of my learned brother colleagues.— *Veterinarian.*

EARLY LACTATION IN A FOAL.

By Prof. J. Wortley Axe.

The following account of a case of early lactation in a foal has been received from Mr. Freer, veterinary surgeon, Uppingham. He says: I was requested yesterday to see a foal said to have a bag as big as a ewe. On my arrival I found a strong, healthy mare foal, eighteen hours old, with a well-developed mammary

gland about as large as you would expect to find on a pony with first foal; the teats as large and long as the first joint on the little finger, and from which I quickly extracted about half a pint of milk, or fluid very much like it, a small quantity of which I send for your inspection. During twenty years' practice in an agricultural district I have neither seen nor heard of anything like it before.

My advice to the owners was to relieve the gland occasionally, and if it became tense and painful to foment with warm water. I also advised a brisk dose of castor oil and that the mare be kept in and on dry food.

The fluid referred to was of a dull greyish-white hue; specific gravity 1030; reaction to test paper, neutral. It presented an opaque appearance, but in a less degree that ordinary milk. On being allowed to stand, a thin layer of cream rose to the surface; examined with the miscroscope, milk globules were seen in large numbers. The addition of acetic acid caused the fluid to assume a more dense white appearance and to throw down a finely granular precipitate.

Lactation in infancy is by no means a rare occurrence in the human subject, but we do not remember to have met with a case in the lower animals, where this function was so prematurely and freely exercised.

Since writing the above, Mr. Freer reports: The foal is going on well. The gland has wasted considerably, but for more than a week after I wrote you the milk was often seen running away from it.—*The Veterinarian.*

PATHOGENIC MICROBE OF INFLUENZA.

By the Same.

Cultivations have been made with the fluid extracted from the lungs of diseased horses, with the pleuretic exudate, the nasal discharge and the blood. As elements of culture, gelatine, serum of the blood of horses and slices of potato have been used. Six varieties of microbes were obtained. The one which he considers as being the germ of influenza forms cultures whose coloration

varies between light and citron yellow. The spots they form develop themselves in width and in rounded spaces. They grow slowly, more rapidly in gelatine than in the serum of the blood of the horse. The cultures to succeed need the contact of the air, therefore are formed by an ærobic microbe, which has the form of round bacillus of small dimensions. Inoculating under the skin of the pectoral regions of a four-year old horse, the culture of this microbe has given rise to a very painful inflammatory œdema. This developed into a circumscribed tumor, which became indolent and spontaneously ulcerated in two places. The openings gave escape to a rosy liquid, mixed with little yellow and whitish masses. This only proves that the inoculated fluid had pathogenic properties. Mr. L. goes further; he considers the ovoid bacilli as the pathogenic element or influenza.—*Gazette Medicale.*

UPON THE MICROBE OF CONTAGIOUS PLEURO-PNEUMONIA.

By Prof. Lustig, of Hanover.

Researches have recently been made by the author to discover the pathogenic microbe of contagious pleuro-pneumonia. In appropriate cultures he has placed portions of recently inflamed lungs, lymph obtained from the interlobular connective tissue. He has succeeded in separating, in a condition of pure cultures, four varieties of microbes, viz.:

1. A bacillus which liquefies the gelatine of culture and forms upon the edges of the liquefied zone pulverulent masses of a whitish-gray color. As soon as the gelatine is entirely liquefied the bottom of the glass is filled with a deposit of powder of similar nature. The liquefied gelatine which is on the top either keeps its natural yellow tint, slightly cloudy, or, less frequently, is almost colorless and clear; while again it may present a red or green tint with more or less transparency. These variations of color depend on the proportions in which the other varieties of microbes exist in the cultivations. The microbes of the first kind are always more numerous and destroy the others in time. They appear as thick and short rods.

2. A microbe which does not liquefy the gelatine, but forms

on its surface a deposit like the albumen of an egg. The gelatine is absorbed by degrees as this culture progresses.

3. A micrococcus having analogies with the above, distinguished from it by the golden yellow tint of the masses that it forms.

4. A micrococcus which forms yellow-orange colored masses on the surface of the gelatine of cultivation, with a waxy appearance. Like those of the first two kinds, this micrococcus does not liquify the gelatine. Placed upon slices of potato, it develops better. When the cultures are colored with the blue of methylene, they are found composed almost exclusively of micrococci of very small dimensions, some isolated, others coupled up diplococci shape, or in greater number, so as to resemble bacteria.

Inoculations made upon a heifer with the cultures of the first three varieties of microbes gave only negative results. Inoculations made with cultures of the fourth kind to the thoracic region, to the root of the tail, have given rise to local troubles, that is, the formation of two tumors, one the size of a goose egg, the other (that of the tail) the size of a pigeon's egg. Both tumors were sub-cutaneous and were rapidly resorbed.

Then again, in cultivating the liquid exhaust of the healthy pulmonary structure, Mr. Lustig has obtained the pure development of the first three varieties, but never the microbe, orange-yellow color, of the fourth. Thes Mr. L. believes to represent the germ of contagious pleuro pneumonia.

In another article, the author states that by more recent observations the fresh cultures of this yellow-orange microbe are in great part made up of bacilli, which present points of a darker coloration (formations of spores). They are short, thick and moving rapidly.—*Gazette Medicale.*

PRESCRIPTIONS FOR GENERAL TUBERCULOSIS AND TABES MESENTERICA IN CATTLE.

By J. Brodie Greswell, M.R.C.V.S.

Having found the following formulæ very useful in the treatment of general tuberculosis and of tabes mesenterica in beasts, I venture to submit them to the notice of the readers of the *Veteri-*

nary Journal, in the hope that should any practitioners think well of them they may receive a more extensive trial:

1.—Creosote..... ʒ i.
Calcii sulphitis..... ʒ ii.
Ferri sulphatis..... ʒ iii.
Pulv. zingiberis..... ʒ i.
Misci; fiat pulvis.
To be given twice daily in a quart of ale.

2.—Olei morrhuæ..... ʒ x.
Calcii sulphitis..... ʒ iii.
Ferri sulphatis..... ʒ iii.
Liquoris strychniæ..... ʒ ii.
Misci; fiat haustus.
To be given once or twice daily.

3.—Olei morrhuæ..... ʒ viii.
Tinctura gummi Eucalypti..... ʒ ss.
Calcii sulphitis..... ʒ ii.
Misci; fiat haustus.
To be given once daily.

This latter is especially beneficial when there is much diarrhœa. I have not as yet administered it nearly so often as the two former prescriptions, but I believe it to be equally if not more efficacious. —*Veterinary Journal.*

RUPTURE OF THE RECTUM IN A THOROUGHBRED BROOD MARE.

By A. J. Maccallum, M.R.C.V.S.

An urgent messenger came for me on the evening of March 4, requesting me to at once visit a thoroughbred mare belonging to a client of mine (Mr. Y—) of B.B. which was said to have been ill for four or five hours, and suffering great pain. I went off immediately to the place, which was about four miles away. On my arrival I learned that the mare was nine months gone in pregnancy; had been in her usual health till about midday, when she was noticed getting up and down and seemingly in pain. Thinking she was only slightly griped they took little notice at first.

I found the mare in a loose box. She was looking very haggard, trembling a little; legs and ears cold, mouth clammy; mucous membranes pale; a running down pulse, and abdomen slightly tympanitic. She looked wistfully round at her flanks, pawed a little, and seemed to have great pain. I at once gave her a powerful anodyne draught to relieve her pain, while I proceeded with my examination and inquiry as to her history. I learned that she had been used as a brood mare and the dam of a good stock; that she had always been healthy up to that day. She had been getting the usual food, viz., corn and hay and a little boiled food at night; that she was led out every day for exercise. While being led out that morning she seemed duller than usual, but showed nothing calling for special notice. I also learned that she had got a fright about ten days previously when going out at the stable door, and had an ugly fall. She got up and walked away, seemingly none the worse, and those who saw it thought no more about it. I attached great weight to the fall, and proceeded with my examination. I found, on passing my hand along the vagina, to ascertain the condition of the uterus, the os dilated sufficiently to admit my three fingers; the animal strained a good deal while I was doing so. I next passed my hand into the rectum. I found the passage loaded with rather dry broken fæces, which I proceeded to remove. I had cleared out the passage to the extent of twelve inches or so. To my horror I found the bowel was quite ruptured, and only attached by a mere rag of membrane on the left side at the part indicated. The fæces was quite filling up the pelvic cavity. I cleared it away and everted the free end of the bowel, which I found bore traces of having been badly bruised, and seemed as if it had been rent. I then proposed to myself what I could do for the best in the circumstances. My first idea was to make a new attachment for the free end of the bowel within the sphincter, but finding the fæces all scattered about within the abdomen, I concluded that would be useless. I told my client that the mare's case was hopeless. He inquired whether nothing could be done to save the foal. I answered that seventh month children often lived and did well. If the fœtus was still alive, it might be worth the experiment to try

and save it. I found on examination that it was all alive and kicking. I at once put the mare under the influence of chloroform. When I had her completely under it I made a smart section along the linea albi, released a very handsome colt foal from the womb and its appendages, rolled it up in a hot blanket, and carried it away to the front of the kitchen fire, giving orders to have mare at once destroyed by a knock on the head, which was done. The foal was comatose for five or ten minutes, when it became all right. It seemed much finer in the coat than a full matured foal; otherwise it looked very well. I gave directions about its maintenance. I have since learned that it only lived three hours. I made a post mortem examination of the mare. This revealed nothing but the peritonitis and the rectum much discolored; all the other organs were quite healthy.

As I am rather in a difficulty about the cause of the rupture, I submit the above particulars in the hope that some of our learned friends will clear it up.

I am of opinion that it was caused by the fall at the stable door ten days previously. But, then, how did the animal continue to eat her usual food, take daily exercise, pass fæces, micturate, and seem otherwise in good health for the intervening ten days between the accident and the fatal illness on the day of my visit? —*Veterinary Journal.*

OFFICIAL APPOINTMENTS.

Dr. Julius Gerth, Jr., has received from the Governor of Nebraska the nomination of State Veterinarian. Dr. G., who was enjoying a good private practice in New Jersey, is the first veterinarian that was ever appointed by a City Board of Health as meat inspector. His appointment then was followed by a regulation of the Board, making it obligatory for candidates for the said position to be veterinarians.

Dr. G. Keefer, of Hillsdale, Mich., has been appointed Territorial Veterinarian for Montana Territory, the commission being dated July 3, 1885.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

LIST OF OFFICERS WHOSE TERMS OF OFFICE EXPIRE AT THE NEXT MEETING.

President—Dr. W. E. B. Miller; *Vice-President*—Dr. L. H. Howard; *Secretary*—Dr. C. B. Michener; *Treasurer*—Dr. Ch. Burden.

Board of Censors—Drs. A. Liautard, J. L. Robertson, W. H. Hoskins, J. C. Meyer, Jr., J. Corlies, W. Bryden and W. J. Crowley.

Library Committee—W. J. Coates and J. Critcherson.

Committee on Intelligence and Education—J. L. Robertson, W. Howe, C. P. Lyman, W. H. Rose, Dr. Detmars.

Finance Committee—W. Pendry, D. J. Dixon, J. Saunders.

Committee on Diseases—A. Liautard, J. Winchester, A. Zuill, J. C. Meyer, Jr., J. D. Hopkins.

Prize Committee—J. Corlies, C. H. Peabody and S. K. Johnson.

Drs. Hoskins, Howe and Bryden were appointed a special committee to urge upon all veterinary colleges a uniform standard of examination.

CORRESPONDENCE.

DAMASCUS, Ill., June 29, 1885.

A. Liautard, M.D., New York City:

DEAR SIR—I report to you two prolific cows, the property of Rudolph Stotaman of Eleroy, Stephenson Co., Ill. On July first past both cows gave birth to twins. The following May first past both cows, the same, gave birth to twins again.

Yours,
JAMES ALBRIGHT, V. S.

OBITUARY.

A. ZUNDEL.

Since the issue of our last number, the inexorable fiat has called from the ranks of the veterinary profession many good members and worthy workers; but amongst them all none was

better esteemed or more widely known in the veterinary world than A. ZUNDEL, the Superior Veterinarian of Alsace–Loraine, the author of many valuable publications, and the reviser of D'Arboval's Dictionary, a work which is accepted as the most complete and reliable encyclopædia of veterinary medicine now known, and which is destined for years to come to maintain its standing as the best work of reference for the veterinarian practitioner, the agriculturist and the stock raiser, thus far published.

The veterinary literature of France and Germany are debtors to M. Zundel for many excellent original papers and pamphlets, which his proficiency in several languages, together with his active temperament and untiring industry, thoroughly qualified him to produce. These various works fitly illustrate his zeal for the advancement of his chosen science, and nobly exhibit his character as its earnest exponent and the unselfish friend and helper of his brother practitioners of all nationalities. He was graduated at the School of Lyons in the year 1856, and his decease occurred on the 18th of June of the present year, after a long and painful sickness, having just entered his fiftieth year. When in his company two years ago, having met him at the congress of Brussels, we little anticipated so early a termination of so useful a career, as after the day's work of the congress we indulged in friendly conversation upon our respective labors. He expressed to us at that time his earnest desire to visit the United States.

The veterinary profession loses in him one of its best and most indefatigable workers, while those who knew him personally have to regret the loss of a warm friend and valued adviser.

DR. E. M. PERRY, M.R.C.V.S.

Intelligence of the death of Dr. E. M. Perry has also reached ns. He graduated from Harvard College, and became a member of the Royal College of Veterinary Surgeons of London, in 1878. He was established in practice in New Bedford, Mass., and died suddenly from apoplexy. He was pleasant, genial and social, and possessed a large circle of friends.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The regular annual meeting of the United States Veterinary Medical Association will be held at the American Veterinary College, 141 West 54th street, New York, on Tuesday, September 15, at 10 a.m. It is hoped that all members will be present. Petitions for membership should be addressed to the Secretary prior to date of meeting. The Secretary also desires that all those who have not received certificates of membership should acquaint him of the fact at their earliest convenience.

C. B. MICHENER, *Sec'y*,
269 West 38th street.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The fifth regular meeting of the Veterinary Medical Association of New Jersey was held at Van Woerts' Hotel, Long Branch, August 6, 1885.

The President, Dr. Miller, called the meeting to order at 1.30 p.m., and requested the Secretary to call the roll. The following members were in attendance:

Drs. H. W. Rowland, of Jersey City; Wm. B. Miller, of Camden; C. K. Dyer, of Mount Holly; James W. Hawk, of Newark; W. P. Humphreys, of Elizabeth; Wm. B. Haydon, of Newark; J. C. Duston, of Morristown; J. Gerth, Jr., of Newark; and Wm. Herbert Lowe, of Paterson.

The minutes of the last meeting were read and approved.

Dr. W. H. Pendry, Secretary of the New York State Veterinary Society, was present. Dr. W. Runge, of Newark, was also present as a visitor.

The Secretary received a letter from Prof. Liautard, Dean of the American Veterinary College, expressing his desire and intention to be present at the meeting, but his absence was accounted for by the pressure of duties which necessarily demanded his time on his return from his recent sojourn in Europe.

A telegram was received from Dr. Chas. T. Goentner, Secretary of the Keystone Veterinary Medical Association, expressing his inability to attend.

According to Senator Fish's advice and instructions the Certificate of Incorporation has been duly recorded at Trenton, therefore the Veterinary Medical Association, of New Jersey has become legally incorporated.

The Chair requested the Committee upon the Constitution and By-Laws to report.

Dr. Lowe, on behalf of the committee, stated that the new Constitution and By-Laws were in course of preparation, but as Dr. Gerth had been traveling in the West it had been impossible for them to meet in time to complete the same.

The reports of the Secretary and Treasurer were received.

Dr. Dustan related, at some length, his experience with Rheumatic Influenza, stating that twenty-two cases had come under his observation during the present year. Considerable discussion followed Dr. Dustan's statements, which were participated in by many of the members. Dr. Lowe spoke of two cases of so-called Rheumatic Influenza, and gave some points of differentiation.

Dr. Dyer was the next speaker, the subject being Operative Surgery, and gave his experience in removing melanotic tumors. Dr. Miller followed on the same subject.

Dr. Rowland, who has been making investigations for the Government in Texas relative to contagious disease, was asked to give an account of his investigations, but declined to do so at the present meeting.

The Secretary offered the following resignation:

LONG BRANCH, N. J., August 6th, 1885.

To the Veterinary Medical Association of New Jersey:

GENTLEMEN.—The undersigned, your Secretary, most respectfully tenders his resignation as Secretary of the Veterinary Medical Association of New Jersey. This resignation is a necessity owing to the fact that I leave New Jersey permanently to make a new home in the State of Nebraska. I exceedingly regret taking this step, but assure your honorable body that my association with your society will always be remembered with pleasure and pride.

Yours most truly,

J. GERTH, Jr.

The resignation was accepted.

The President, Dr. Miller, said that the next in order would be the election of a Secretary.

Dr. Lowe was nominated and elected unanimously.

The following resolutions were offered by the President:

Whereas, Our Secretary, Dr. Julius Gerth, Jr., has recently been appointed State Veterinary Surgeon of Nebraska, and consequently is obliged to leave us, therefore be it

Resolved, That we express our sorrow at the loss of so valuable a member of this Association, but at the same time we congratulate ourselves upon the appointment of one of our members to so responsible a position in a far distant State, and we feel assured that the authorities of the State of Nebraska will have no cause to regret their choice.

Resolved, That we tender to our esteemed friend our hearty congratulations, and hope his appointment may prove equally beneficial to both the State and the appointee.

Resolved, That we express the hope that the health of our friend may be preserved to a long life of usefulness and influence in his future field of operations.

Dr. Gerth's response, upon the adoption of the resolutions, was characterized by marked appreciation of the esteem in which he was held by his brot bers of the Association, and he then offered his resignation as a member of the Association. The same was accepted, and he was immediately and unanimously elected an honorary member.

The Secretary was instructed to forward a copy of the foregoing resolutions appertaining to Dr. Gerth, to his Excellency Hon. James W. Dawes, Governor of Nebraska.

It was decided to hold the next regular meeting of the Society in Camden, the second Thursday in December.

The meeting adjourned.

WM. HERBERT LOWE, D. V. S., *Sec'y.*

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, Boston, Wednesday evening, June 3d.

In the absence of the President, Vice-President J. S. Saunders presided, and there were present Doctors Alderman, Blackwood, Bryden, Bunker, Harrison, Howard, Osgood, F. Saunders, Simmons, Skally, Winchester and Winslow.

After the reading of minutes of the previous meeting, the following business was transacted.

Inquiry being made as to progress of Committee on Charter, they reported, that owing to the close of the session of Legislature, no progress could be made at present. Some discussion taking place as to the legal points of the matter, Dr. Osgood moved that the committee be authorized to consult a lawyer. Dr. Bryden offered an amendment that Dr. Winchester be authorized to consult Attorney General Sherman. Amendment accepted and motion carried.

The committee appointed at the May meeting to prepare resolutions censuring the pursuance of the so-called "Subscription Plan" by different veterinary institutions, reported the following for the consideration of the meeting:

Whereas, We, the Massachusetts Veterinary Association, a body composed of regularly graduated veterinarians, having for its objects the elevation and advancement of the veterinary profession and the science of veterinary medicine, the encouragement of collegiate and professional feelings among the members of the profession practising in the State of Massachusetts, and

Whereas, We believe such objects are only to be attained by each member of the profession as an individual, and each organization as a body, using its every effort to that end, commending and applauding whatever advances and honors the cause, and discouraging and condemning that which dishonors it and retards progress, and

Whereas, A system of business management pursued by different veterinary institutions in this country and England and known as the "Subscription Plan," has, in the experience of our confréres, been derogatory and detrimental to the best interests of the science and profession and

Whereas, We, the members of the Massachusetts Veterinary Association, have realized by our own experience that the said "Subscription Plan" as pursued by the management of the Harvard Veterinary Hospital in this city and State, is repeating its disgraceful history in exerting a most injurious influence upon members of the profession practising in the State of Massachusetts, is already threatening defeat to the objects of this Association, and is thereby a foe to the cause of veterinary science and the veterinary profession; be it therefore

Resolved, That we, the members of the Massachusetts Veterinary Association, in meeting assembled, do hereby as a body, express our disapproval and condemnation of the adoption and continued pursuance by the management of the Harvard Veterinary Hospital, of the said "Subscription Plan," and be it

Resolved, That it is the duty of every member of this Association to use his utmost influence to have said plan discontinued and abolished.

JOHN S. SAUNDERS, D.V.S.
MADISON BUNKER, D.V.S. } *Committee.*
L. H. HOWARD, D.V.S.

Pending action on the report of the committee, quite a discussion of the subject took place, which brought forth a very general expression of opinion. It seemed to be nearly unanimous as to the injurious effects of the subscription plan upon the profession.

Some of the gentlemen thought that the overseers of Harvard College could not be cognizant of the real state of affairs or appreciate the feelings of the members of the profession in regard to the pursuance of the subscription plan in their veterinary department, else they would not sanction it.

At the close of the discussion the report of the committee was accepted by a nearly unanimous vote.

Dr. Bryden presented the name of Charles M. Bailey, V.S., of Haverhill, Mass., which was referred to the Executive Committee.

Dr. H. L. Alderman, of East Lexington, read a paper on "Laminitis in the Horse."

He first remarked that the disease was not confined to the feet, but the whole organism is affected, and he advised that in cases of lung diseases, in heavy horses particularly, the feet be poulticed to prevent metastatic laminitis, mentioning lung troubles as a possible cause of laminitis.

He then described very clearly the course of the disease, its symptoms and different forms of treatment.

The paper was provocative of a lengthy discussion, particularly as to causes operating to produce laminitis, and the shoe best calculated to relieve the condition, some recommending the "Broad" shoe, others the "Goodenough," with different modifications, etc., etc.

At the conclusion of the discussion a unanimous vote of thanks was tendered the essayist. Dr. Bryden was appointed next essayist.

No other business being before the meeting, it adjourned.

The July meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, Wednesday evening, July 1st.

Dr. Billings presided, and there were present Doctors Blackwood, Bryden, Byrne, Howard, Peters, J. S. Saunders, Skally, Winchester and Winslow.

The first part of the evening was taken up by a discussion in regards to the duties of the Executive Committee and a report of the Committee on Charter as to legal points in connection therewith.

Dr. Winchester suggested that the August meeting be omitted, and subsequently made a motion that when this meeting adjourn it be until the first Wednesday in September, which was agreed to.

The meeting then listened to Part I of an essay on "The Horse's Foot," by Dr. Bryden, the essayist promising to carry out his original intention of a further treatment of this subject.

He first called attention to the importance of study as to conditions of the horse's foot, even from the time of its first formation during fœtal life, as well as the conditions affecting its growth afterward, such as locality, climate, soil, etc.

He said we have different varieties of hoof, according to the locality in which the horse is raised and according to what its surroundings are.

He called attention to the necessity of guarding against the changes which domestication produces, and explained how an irregularly growing hoof would cause distortion and unsymmetrical development of all tissues above, producing spavin, ringbones, bent hocks, dimpled hips, tail drawn to one side, etc., thus affecting not only the action, but shape as well, of the animal.

At the conclusion of his remarks, a vote of thanks was tendered the essayist, and he was asked to favor us at a later day with his further treatment of the subject.

Dr. Peters was appointed essayist for the September meeting, and the company adjourned.

L. H. HOWARD, *Secretary.*

NEWS AND SUNDRIES.

VETERINARIAN WANTED.—A correspondent writes that Wellsboro, Pa., is a good place for a regular veterinarian to start practice. The town is quite large, numerous animals are kept, and at present are said to be left without medical attendants when needed. Apply to T. E. Lyon, Wellsboro, Pa.

NEW MEMBERS OF THE PROFESSION.—The *Veterinary Journal* of August brings the news of the graduation of W. Folsetter, of Euansville, Ind., and E. Crundall, of New York State, at the examination of the Royal College of Veterinary Surgeons.

THE NEBRASKA QUARANTINE.—The State of Nebraska has now got a live stock commission and a State Veterinarian, and the Governor, on the recommendation of the commission, has issued a proclamation declaring quarantine against all cattle from the States of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, West Virginia, Ohio, Illinois, Kentucky, Missouri and the District of Columbia, unless such cattle have been quarantined at the point of entry into the State for a period of ten days, and retained there till they shall have a certificate of health signed by the State Veterinarian. All cattle coming into the State from the above named States are required to enter the State at Omaha, Plattsmouth, Blair or Falls City.

It seems to us that the quarantine declared is more sweeping than present facts would warrant. It may be only a matter of prudence that cattle coming into the State from localities where

pleuro-pneumonia is known to have existed should be examined by and receive a certificate of health from the State Veterinarian; but a ten days' quarantine is wholly valueless, so far as this disease is concerned, and the detention of cattle on the borders of the State for that length of time will only serve as an annoyance and expense to the owners, without serving any useful purpose in protecting the cattle owners of the State.

Nothing short of a three-months quarantine is at all effective against the introduction of pleuro-pneumonia, and experience has shown that the disease may remain latent in the system for a longer period and then develop actively. A large portion of all the territory in the States named is free from the least suspicion of pleuro-pneumonia, which makes the sweeping terms of the proclamation appear unreasonable.—*Farmers' Review.*

Pasteur's Method Commended by a Belgian Commission.—The commission appointed by the Belgian government to experiment on Pasteur's method of protecting cattle and sheep from anthrax by inoculation with the attenuated virus have published their report. They find, from very numerous vaccinations which have been performed at Hervé since the spring of 1883, on farms where anthrax breaks out every year, that Pasteur's method preserves both sheep and cattle from the disease. No case of anthrax has been observed among a thousand fully-grown cattle which have been vaccinated, while the non-vaccinated have died, as usual. As regards the duration of the protective influence, it has been found to be one year for young animals in the proportion of ninety per cent, and at least two years for all mature animals. They confirm Mr. Pasteur's statement that places where animals which have died of anthrax have been buried are dangerous, the soil retaining the germs.—*Science.*

Assistant State Veterinarians (Illinois).—The third section of the recently enacted law in relation to the suppression and prevention of the spread of contagious and infectious diseases among domestic animals, provides that, in the event of the inability of the State Veterinarian to perform all the work which he may be directed to do by the Board of Live-Stock Commissioners, he

may by and with the advice and consent of said board, appoint necessary assistants. In conformity therewith, Dr. N. H. Paaren, State Veterinarian, has, with the consent of the Board of Live-Stock Commissioners, appointed the following veterinary surgeons his assistants, namely: Dr. L. C. Tiffany, of Jacksonville; Dr. W. L. Williams, of Bloomington, and Dr. A. H. Baker, of Chicago. It is the intention to appoint such assistants in various parts of the State, from among the most competent and experienced veterinarians obtainable. They will act under instructions from the State Veterinarian.—*Prairie Farmer.*

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Annales de Medecine Veterinaire, Clinica Veterinaria, Recueil de Medecine Veterinaire, Presse Veterinaire, Echo Veterinaire, Gazette Medicale, Revue d'Hygiene, Revue fur Theirhielkunde und Thierzucht, Journal Zootechnie.

HOME.—American Farmer, Country Gentleman, Iowa Farmer, Ohio Farmer, Practical Farmer, Druggist Circular, Home Farm, National Live Stock Journal, Spirit of the Times, Turf, Field and Farm, Maine Farmer, American Agriculturist, College and Clinical Record, Prairie Farmer, Medical Record, Medical Herald, Farmers' Review, Breeders' Gazette.

NEWSPAPERS.—Toronto Advertiser, North Carolina Farmer, National Stockman Gazette, Empire State Agriculturist, Breeders' Monthly, Farmers' Home, Kansas Patron, Kansas Agriculturist, Rural Californian, Farm Implement, Spirit of the Turf, Poultry Keepers' Guide, U. S. Dairyman Journal, State Granger News, Bee Keepers' Guide, Home Journal, Farmers' Friend, Photographic Times, Western Rural, Northwestern Tourist, Indiana Farmer, Our Country Home, Northampton Democrat, Therapeutic Gazette, N. Y. Weekly Times, News and Weekly Journal, Commercial News, Howard's Dairyman, Indiana Medical Journal, The Advance, American Cattle Breeder, Albany Express, The News and Currier of Charleston, S. C., The National Stockman, Health and Home, Journal of Accidents, Our Dumb Animals, Kansas City Journal, St. Louis Critic, Chenoa Gazette, The Polyclinic, The Rural Home, The Canadian Breeder, Massachusetts Agriculturist, Drovers' Journal, Arkansas Gazette, Wallace Monthly, Farm and Garden Home, Eastern Medical Journal, Western Reporter, Sheep Breeders' Gazette, American Poultry, Philadelphia Times, Farmers' Friend, Farm and Fireside, The Medical Chronicle, The Pilot, New England Farmer, Home Circle, American

Traveller, Croley's Weekly Husbandman, Rural Messenger, Farmer and Mechanic, American Sheep Breeders' Journal, The Indianapolis Times, Knight of Honor Observer, New Haven Journal, TheBoston Times.

CATALOGUES, ETC.—New York College Veterinary Surgeon, New York University Medical College, Rush Medical College, Chicago, 64th Annual Report Mercantile Library, 7th Annual Report State Board of Health, Register Franklin and Marshall College, Annual Report Department of Health, Brooklyn, The Annual Commencement College of Physicians and Surgeons, Baltimore, Md., Memphis Medical College Catalogue, 16th Report Board Agriculture of New Hampshire College, 68th Annual Report of the Asylum for the Relief of Persons Deprived of the Use of their Reason, Annual Report of Memphis Board of Health, Annual Report of New York Cancer Hospital, Catalogue of University of Pennsylvania, Report of the Department of Agriculture, Statistics and Health of Province of Manitoba, Annual Catalogue of Michigan Agricultural College, Humboldt Library, Animal Automatism.